

AUTHOR: BUDNIKOV, P.P., Member of the Academy, 10-6-59/59
and GORSHKOV, V.S.
TITLE: The Stability of Calcium Hydrosulphoaluminate in the Portland
Cement Stone. (Ustoychivost' gidrosul'foaluminata kaltsiya v port-
landtsementnom kamne, Russian)
PERIODICAL: Doklady Akademii Nauk SSSR, Vol 113, Nr 6, pp 1272 - 1275, 1957
(U.S.S.R.)
ABSTRACT: On the occasion of the hardening of portland cement greater quanti-
ties of calcium hydrosulphoaluminate are formed. Therefore the
question of the stability of this compound in the hardened cement
stone is rather important. The hitherto existing papers mostly
treat the question of the stability of the monocrystals of this
substance, which is formed on the occasion of the interaction
between calciumaluminate solved in water, and gypsum. The dis-
integration of these crystals can be observed microscopically in
normal conditions in gypsum, aluminahydrate, and calciumoxide. It
was stated by other authors that the crystals of this compound,
according to fluctuations of temperature and atmospheric humidity,
are only stable in an atmosphere of saturated vapor at 18°. From
these and further data of other papers it appears that contradicting
and rather sparse data exist concerning the stability problem of
the calcium hydrosulphoaluminate synthesized from solutions as well

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The Stability of Calcium Hydrosulphoaluminate
in the Portland Cement Stone.

20-6-24/59

directly formed in the hydrated cement. The authors carried out this work in order to determine stability by chemical and radiographic means. The experimental substance was obtained in three different ways. Table 1 contains the data on the interaction kinetics between gypsum and cements of the works "Gigant" and "Oktyabr'", and tricalciumaluminate. They prove that in the cement of the work "Gigant" free gypsum lacks 28 days after cement hydration, whereas the gypsum of the work "Oktyabr'" is completely absorbed only after three months. Also the formation of calcium hydrosulphoaluminate from tricalciumaluminate and from the semi-hydrated gypsum is practically completed after three months. The following conclusions are to be drawn: 1) The calcium hydrosulphoaluminate formed in humid surroundings in cement stone at $20 - 22^{\circ}$ is a stable compound. 2) During a water-thermal treatment this compound begins to disintegrate at 40° . 3) The disintegration of the compound in question is accompanied during a water-thermal treatment by a separation of free gypsum, the quantity of which increases with rising temperature. (1 illustration, 3 tables, 3 Slavic references.)

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The Stability of Calcium Hydrosulphoaluminate
in the Portland Cement Stone.

20-6-24/59

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED: 22.12.1956
AVAILABLE: Library of Congress

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BUDNIKOV, P. P.

20-3-31/46

AUTHORS: Al'perovich, I. A., and Budnikov, P. P. , Corresponding Member of the Academy

TITLE: On the Nature of Dispersion in Plastic Clays (O prirode dispersnosti plastichnykh glin)

PERIODICAL: Doklady AN SSSR, 1957, Vol. 116, Nr 3, pp. 463 - 465 (USSR)

ABSTRACT: In one of their previous elaborate studies, the authors have proved the decline of "tixotropic" compaction of plastic clay by extracting the air due to the distance of the absorbed and micro-dispersed air. The high resistance of a tixotropic compaction of plastic clay from which the air was not extracted, is explained by the cohesion of particles by means of micro bubbles. The latter adhere to the hydrophobic sections of the surface of the compact phase by forming the final edge. angle, and an additional flocculation structure. The air-phase, i.e. the afore-said air-bubbles, create the conditions more or less favorable for the flocculation in high concentrated disperse systems (pastes) to which plastic clay belongs. The aggregation in the primary (elementary) particles of the clay is determined by the electrolytic coagulation under the effect of the ions present in the clay. The flocculation is not considered in this

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On the Nature of Dispersion in Plastic Clays

case, since it is correlated with a certain hydrophobia of the mineral particles. This unilaterality is explained in first line by the frequently great external similarity of the phenomenon of flocculation and coagulation. The causes for these two phenomena are, however, quite different. With this difficulty it is necessary to isolate the phenomenon of flocculation solely, and to analyse it in such a way that the factors influencing the coagulation-stability are changed. For this purpose the authors applied a method of extracting the air, by which only the flocculi are destroyed ("flokuli"), whilst the aggregates of coagulation, due to their greater stability, remain untouched. The Montmorillonit-clays which were moistened up to a normal plastic state, were de-aerated in an airtight vacuum chamber of the tape press ("lentochnyy press"), or they are passed through the press without vacuum. The plastic mass placed without further processing into a sedimentation cylinder shows a 5 times increase of the $< 0,0005$ mm thick particles and a 6 times enlargement of $0,001 - 0,0005$ mm thick particles compared to none-deaerated clay, viz. at the expense of great disperse particles ($0,05 - 0,01$ mm). These results should be received with reserve, since the analysis of sedimentation without previous processing of the mass, is not exact. With the second variant the

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clay was ground in a porcelain mortar by means of rubber-covered pounder. With that, the differences of the granulometric composition does not disappear, though the total degree of dispersion increases. The increase of particles (as above) was somewhat smaller than in the case of the previous variant (aprox. 3 times). Finally in the case of the 3rd variant, the clay - with 0,05 N - solution of HCl - was processed to calcium till to be loss of the reaction and the suspension was shaken and throughout 2 hours. The latter processing (saturation of the sodium cations) eliminates the difference of the granulometric composition of both the de-aerated, and none-deaerated clays and increases the total degree of dispersion. With this, also the flocculi are decomposed besides the coagulation aggregates with such a surface of mineral particles. These results allow the enunciation of several suppositions on the nature of the aggregates in the plastic bottom-colloidal systems: the aggregation, also in this case, takes place due to the adhesion of microdisperse air bubbles on the hydrophobic place of the surface of the compact phase and not only due to an electrolytic coagulation by the presence of ions in the bottom. The aggregates obtained by the two methods, co-exist. The flocculation

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On the Nature of Dispersion in Plastic Clays

is apparently suppressed by the coagulation, if the quantity of the
afor-said air bubbles is small, and vice-versa. There are 1 table,
and 5 Slavic References.

SUBMITTED: October 1, 1956

AVAILABLE: Library of Congress

Card 4/4

BEREZHNOY, Anatoliy Semenovich; BUDNIKOV, P.P., akademik, otv.red.;
POKROVSKAYA, Z.S., red.izd-va; RAKHLINA, N.P., tekhn.red.

[Silicon and its binary systems] Kremnii i ego binarnye sistemy.
Kiev, Izd-vo Akad.nauk USSR, 1958. 249 p. (MIRA 12:3)

1. Akademiya nauk Ukrainskoy SSR (for Budnikov).
(Silicon)

BUDNIKOV, P.P.

GULINOVA, Larisa Grigor'yevna, kand.tekhn.nauk; KORNILOVICH, Yuriy Yevgen'yevich, kand.tekhn.nauk; SKATYNSKIY, Viktor Iosifovich, kand. tekhn.nauk; BUDNIKOV, P.P., akademik, red.; TEPLYAKOVA, A., red.; ZELENKOVA, Ye., tekhn.red.

[Technology of autoclave building materials] Tekhnologiya avtoklavnykh stroitel'nykh materialov. Pod red. P.P.Budnikova. Kiyev, Gos.izd-vo lit-ry po stroit. i arkhitekt. USSR, 1958. 254 p.

(MIRA 11:7)

1. Akademiya nauk USSR (for Budnikov)
(Building materials)

BUDNIKOV, P. P., TRESVYATSKIY, S. G., and KUSHAKOVSKIY, V. I.

"Binary Phase Diagrams: $\text{UO}_2 - \text{Al}_2\text{O}_3$, $\text{UO}_2 - \text{BeO}$, $\text{UO}_2 - \text{MgO}$ "

paper to be presented at 2nd UN Intl. Conf. on the peaceful uses of Atomic Energy, Geneva, 1 - 13 Sep 58.

BUDNIKOV, P. P., Academician

"Effect of Gypsum in Hardening Portland-cement" p. 299

(AS UKR. SSR)

~~"Synthesis and Structure of Hydroxides containing Single and Complex
Heavy Metal Cations" p. 36~~

Transactions of the Fifth Conference on Experimental and Applied Mineralogy
and Petrography, Trudy ... Moscow, Izd-vo AN SSSR, 1968. 61pp

reprints of reports presented at conf held in Leningrad, 26-31 Mar 1966. The
purpose of the conf was to exchange information and coordinate the activities
in the fields of experimental and applied mineralogy and petrography, and to
stress the increasing complexity of practical problems

AUTHORS: ~~Budnikov, P. P.~~, Bulavin, I. A., SOV/156-58-1-41/46
Zakharov, I. A.

TITLE: Liquid Sintering of Corundum Ceramics (O zhidkostnom spekanii korundovoy keramiki)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 1, pp. 168 - 172 (USSR)

ABSTRACT: There are 2 ways of sintering of ceramic substances: a) without participation of a liquid phase, b) liquid sintering. In the case of a), solidification of the ceramic substance is due to a granular recrystallization of the powder. In the case of b), two ways must be distinguished: 1) The quantity of liquid phase is sufficient for filling the pores left after contraction of the crystalline until these have reached contact, and 2) the melt will not be sufficient, and the remaining pores will be filled due partly to recrystallization of the crystalline phases. The positive part played by the liquid phase in sintering of ceramic materials is emphasized by many research workers (Refs 1-5). A survey of literature is given next. The authors have tried to determine how

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sintering of corundum ceramics depends on the composition and quantity of the liquid phase formed in sintering, i.e., when its dissolving action upon the crystalline phase is considered. The melt that was to form the liquid phase of the ceramics was taken from the systems $\text{CaO-SiO}_2\text{-Al}_2\text{O}_3$ and CaO-BaO-SiO_2 (Table 1). Figure 1 shows the solubility of the corundum in the melt. Investigations have shown that sintering rates of corundum material with various melts will depend on the viscosity of the melt and on the change of the viscosity: surface tension ratio due to further dissolution of Al_2O_3 in the melt. For smaller quantities of the melt introduced, the sintering process may in part take place at the cost of recrystallization of the crystalline phase. In this case the time required for completing the shrinkage will be longer for a smaller quantity of the melt being formed, and for a lower sintering temperature. The authors prove that for producing sintered corundum ceramics of minimum porosity a greatest possible quantity of liquid phase is necessary so that it will be sufficient for filling all the holes. There are 4 figures.

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SOV/156-58-1-41/46

1 table, and 6 Soviet references.

ASSOCIATION: Kafedra obshchey tekhnologii silikatov Moskovskogo khimiko-
tekhnologicheskogo instituta im.D.I.Mendeleyeva (Chair
of General Silicate Technology of the Chemical Engineering
Institute imeni D.I.Mendeleyev, Moscow)

SUBMITTED: September 26, 1957

Card 3/3

AUTHORS: Budnikov, P. P., Bulavin, I. A., SOV/156-58-3-45/52
Zakharov, I.A.

TITLE: On the Effect of the Phase Composition on the Mechanical Strength of Corundum Ceramics (O vliyaniy fazovogo sostava na mekhanicheskuyu prochnost' korundovoy keramiki)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 3, pp. 576 - 579 (USSR)

ABSTRACT: The effect of the phase composition on the mechanical strength of corundum ceramics, especially in regard to porosity, was investigated. The strength of corundum ceramic products depends on the glass phase. With an increase in the amount of the glass phase (more than 40%) the porosity increases, which reduces the strength of the body. The samples were also investigated with respect to their microhardness, and the phase composition was determined by microphotography. The microhardness of corundum ceramics amounts to 2580 kg/mm²; that of the glass phase fluctuates between 945 and 1450 kg/mm². The microhardness of the glass phase depends on the Al₂O₃ content. A glass phase of about 80% Al₂O₃ has a microhardness of 1450 kg/mm². The mechanical

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- On the Effect of the Phase Composition on the
· Mechanical Strength of Corundum Ceramics

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strength of the ceramic bodies increases linearly according to the Al_2O_3 content in the glass phase. The dependence of the strength and the porosity on changes in the content the glass phase was investigated. Also the influence of other oxides, as e.g. CaO , BaO and FeO_2 , on the strength of corundum ceramics was investigated. When present in smaller amounts these oxides do not influence the strength. There are 4 figures and 10 references, 9 of which are Soviet.

ASSOCIATION:

Kafedra obshchey tekhnologii silikatov Moskovskogo khimiko-tekhnologicheskogo instituta im.D.I.Mendeleyeva
(Chair for the General Technology of Silicates at the Moscow Chemical and Technological Institute imeni D.I.Mendeleyev)

SUBMITTED: February 11, 1958

Card 2/2

5(1, 2)

AUTHORS:

Budnikov, P. P.; Kuznetsova, I. P.

SOV/153-58-5-11/28

TITLE:

Multipurpose Utilization of Aluminum Silicate Containing Raw Materials (Kompleksnoye ispol'zovaniye alyumosilikatnogo syr'ya)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 5, pp 65-69 (USSR)

ABSTRACT:

The problem mentioned in the title is of national-economic interest. A process of this type was devised and introduced at the Volkhovskiy alyuminiyevyy zavod (Volkhov Aluminum Works) (Ref 1). Nepheline raw material is processed into alumina, soda products and portland cement. In the Polish People's Republic a works department for the production of alite cement from alumina and marl with an increased Al_2O_3 content was built at Gneszowice on the basis of the investigations carried out by Gzhimek (Ref 2). The authors of this paper wanted to devise a process for the simultaneous production of rapidly hardening cement and alumina on the basis of loam. They succeeded by a double burning. Loam with chalk served as raw material. The mixture was burned until $5CaO \cdot 3Al_2O_3$ and $2CaO \cdot SiO_2$ were formed.

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The latter compound was to promote the decomposition of the

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burned product (Ref 3) on its cooling and transformation into a γ modification. The fine powder produced in this way was leached out by a soda solution and was filtered. The best burning conditions were temperatures at about 1400° , remaining at a temperature for 30 minutes, slow cooling for 10 minutes down to 1200° . The best leaching out conditions were at temperatures of 70° , a ratio between the solid and the liquid phase in the solution of 1 : 5, and a violent stirring for 60 minutes. Aluminum hydroxide was precipitated out from the filtrate containing sodium aluminates by means of CO_2 . After

the removal of sodium aluminate the precipitate (mainly consisting of potassium orthosilicate and calcium carbonate) was burned to produce cement with increased alite content therefrom. The clinker produced under those conditions has a fine crystalline structure; it contains 65-75% alite, 15-20% belite, and 8-12% tricalcium aluminate. Figure 4 shows the chemical analysis of this clinker in per cent. The temperature effect upon the tolerable amount of free limestone in the clinker (which is between 1450 and 1500°) as well as the

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physico-mechanical properties of the cements produced therefrom are given in table 5. It was petrographically proved that the sintering process of the clinker is completed already at 1450°. The best strength indices during the beginning hardening are displayed by a cement from clinker burned at 1450° (Table 7). Figure 1 shows a microphotograph (400 times enlarged) of that cement. Figure 2 gives the curves of the dehydration of the white cement, hydrated for 28 days. There are 2 figures, 7 tables, and 6 Soviet references.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut imeni D. I. Mendeleeva (Moscow Chemo-Technological Institute imeni D. I. Mendeleev)

SUBMITTED: October 25, 1957

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30(7)

SOV/30-58-11-35/48

AUTHOR: Budnikov, P. P., Corresponding Member, Academy of Sciences,
USSR

TITLE: Soviet Scientists Discussing the Exhibition (Sovetskiye
uchenyye o vystavke)

PERIODICAL: Vestnik Akademii nauk SSSR, 1958, Nr 11, pp 116-118 (USSR)

ABSTRACT: The author visited the exhibition with a group of tourists who were scientists and engineers of different fields. The author was mainly interested in the achievements of science and engineering in the field of silicates, of construction materials and their application in the national economy of various countries. In this respect the stands of the exhibition, the majority of which were built of metal and to a smaller extent of reinforced concrete and ceramic hollow blocks, were an embodiment of the trends. Glass and different plastics tiles were used to a large extent. The Soviet Pavilion was situated in the center of the exhibition area; it was a monumental structure in the shape of a parallelepiped of steel, aluminum and glass and was the tallest building of the exhibition. The stands of Czecho-Slovakia, the United States and France are

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Soviet Scientists Discussing the Exhibition

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also mentioned and briefly described. One of the Belgian stands was dedicated to ceramics and glass. The Belgian Stand of Plastics is described as being very interesting. The stands of the United Kingdom (all kinds of ceramics and colored glass), Switzerland (natural construction materials), Austria (corrugated glass, dry plaster and asbo-cement tubes), Finland (natural stone), Morocco (majolica and colored glass) are also mentioned and briefly described. There are 2 figures.

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BUDNIKOV, P.P., akademik

Buildings, components, materials. Izobr.1 rats. no.12:45 D '58.
(MIRA 11:12)

1. AN USSR, chlen-korrespondent AN SSSR.
(Brussels--Exhibitions)

BUDNIKOV, P.P., akademik.

New building materials. Khim. nauka i prom. 3 no.1:2-7 '58.

(MIRA 11:3)

1. AN USSR.

(Building materials)

BUDNIKOV, P., akademik; ZHELEZOVSKAYA, M., kand. tekhn. nauk.

Obtaining lightweight aggregate from local materials. Stroi. mat.
4 no.3:23-25 Mr '58. (MIRA 11:3)

1. AN USSR.

(Lightweight concrete)

BUDNIKOV, P., akademik; SEMCHENKO, I., inzh.; MIKHAYLOV, N., doktor tekhn.
nauk.

Studying structural and mechanical properties of waste sludge.
Stroi. mat. 4 no.9:31-33 S '58.

(MIRA 11:10)

LAN USSR, Chlen-korrespondent AN SSSR (for Budnikov).
(Factory and trade waste)

BUDNIKOV, P., akademik; SEMCHENKO, I., inzh.

Effect of the temperature of waste sludge on its structural and mechanical properties. Stroi. mat. 4 no.11:31-32 N '58.

(MIRA 11:12)

1.AN USSR (for Budnikov). 2.Chlen-korrespondent AN SSSR (for Semchenko).
(Factory and trade waste) (Fluid mechanics)

Country : HUNGARY
 Category : Chemical Technology. Ceramics. Binding Materials.
 Concrete
 Abs. Jour : Ref Zhur-Khimiya, No 14, 1959, No 50437
 Author : Budnyikov, P.P.; Gorshkov, V. S.
 Institute : -
 Title : Stability of Calcium Hydrosulfoaluminate and
 of Calcium Hydrosulfoferrite
 Orig Pub. : Magyar tud. akad. kem. tud. oszt. kozl., 1958,
 10, No 2, 145-156
 Abstract : Investigated were products of the simultaneous
 hydration of calcium aluminates and aluminoferrites
 with gypsum and also phase transformations of the sulfate-
 containing compounds, formed in the hydration of klinkerous
 minerals at room and higher temperatures. Presented
 are the differential-thermal and X-ray analyses of the
 investigated samples. Investigated also were the following
 synthesized minerals:
 $6 \text{CaO} \cdot 2 \text{Al}_2\text{O}_3 \cdot \text{Fe}_2\text{O}_3$, $4 \text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{Fe}_2\text{O}_3$, $6 \text{CaO} \cdot$
 Card: 1/3

H-13

H13

Country	:	
Category	:	Chemical Technology.
Abs. Jour	:	Ref Zhur-Khimiya, No 14, 1959, No50437
Author	:	
Institute	:	
Title	:	
Orig Pub.	:	
Abstract	:	.Al ₂ O ₃ .2Fe ₂ O ₃ , 2CaO.Fe ₂ O ₃ , and 3CaO.Al ₂ O ₃ . As
Con'd	:	a result it was found that products of hydration of the klinkerous minerals, containing iron, in addition to calcium hydrosulfoaluminate (H A), contain also calcium hydrosulfoferrite (H F). Thermal analyses of HF indicate that curves of its dehydration are different in character than those of the HA dehydration. HF is more resistant to temperature.
Card:	:	2/3

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Country	:		H-13
Category	:	Chemical Technology.	
Abs. Jour	:	Ref Zhur-Khimiya, No 14, 1959, No 50437	
Author	:		
Institute	:		
Title	:		
Orig Pub.	:		
Abstract	:	In the steaming-out operation HP decomposes at considerably higher temperatures than does EA. In the steaming-out of cements having high calcium aluminoferrite content, alongside the decomposition of H _a which is accompanied by formation of free gypsum, the formation of a more thermally stable HP is also taking place. The latter tends to bind gypsum. The bibliography includes 4 titles.	
Con'd	:		
Card:	:	3/3	--D. Pyushpeki
Country	:	COMMUNIST CHINA	

BUDNIKOV, P. P.

HUNGARY / Chemical Technology. Chemical Products and H
Their Application. Ceramics. Glass. Bind-
ing Materials. Betones and Other Silicate
Construction Materials.

Abs Jour: Ref Zhur-Khimiya, No 9, 1959, 32239.

Author : Budnyikov, P.

Inst : Not given.

Title : The Role of Calcium Sulfate in the Hardening of
Hydraulic Binding Materials.

Orig Pub: Epitoanyag, 1958, 10, No 3, 61-66.

Abstract: Experiments in the manufacture of alumina cement
(AC) with a high initial durability, by adding
to AC 25-30% calcium sulphate (the anhydride or
gypsum), are described. The calcium aluminate
of AC enters into a reaction with calcium sul-
fate, forming Ca hydrosulfoaluminate, as a con-

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Country : Poland H-13
 Category :
 Abs. Jour. : 46698
 Author : Budnikow, F. F.
 Institution :
 Title : Interaction between Lime, Hydration Products of
 Portland Cement, and Rock Wool.

Orig. Pub. : Cement. Wapno. Gips, 1958, 14, No 10, 228-230

Abstract : Study of the effect of water and hydration products of cement on the filaments of rock wool (RW), in connection with the possible use of the latter in lieu of asbestos in the manufacture of asbestos-cement articles. Samples of RW kept in water for 1 month became coated with a thin film of hydration products. Filaments of RW with an elevated content of Al_2O_3 and CaO disintegrated under the same conditions into spherical crystals. On storage of RW samples in saturated solution of lime for 6 months, no substantial changes were observed. Electron microscopy revealed that the surface of the filaments becomes rough as a result of the action of lime. On RW filaments the same
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Country : Poland

E-13

Inst. Name :

4698

Institut. :
Title :

Orig. No. :

Abstract : hydration products are formed as on the crystalline slag and clinkers of analogous chemical composition. The products of hydrolysis and hydration of portland cement exercise no destructive action on RW filaments, which become hydrated only at the surface. Depth of hydration does not exceed 1 μ . Therefore RW filaments having a thickness of 6 μ can be used as a partial substitute for asbestos in asbestos cement articles. -- B. Levman.

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BUDNIKOV, P.P., akademik.

Large-scope scientific research. Stek. 1 ker. 15 no.3:48 Mr '58.

1. AN USSR.

(MIRA 11:3)

(Glass research)

AUTHORS: Budnikov, P.P., Zlochevskaya, K.M. 131-3-6/16

TITLE: On the Synthesis of the Magnesia-Aluminous Spinel (K sintezu magnezial'no-glirozemistoy shpineli)

PERIODICAL: Ogneupory. 1958, Vol 23, Nr 3, pp 111-118 (USSR)

ABSTRACT: Spinel $MgAl_2O_4$ is the representative of compounds with the general formula $M\ddot{e}O.M\ddot{e}_2O_3$. Its smelting temperature is 2135° . It is resistant against the action of salts and oxides of basic character, and does not decompose easily in mineral acids. It also offers resistance to the action of molten slags and many metals as well as of gaseous deoxidation media. It may therefore also be used as a refractory. In recent years papers have been published in which the results obtained by investigating the dielectric properties of spinel under normal conditions as well as the modification of its electric conductivity with an increased temperature are described. Spinel can be obtained by the smelting together of oxides, but synthesis in the solid phase is preferred because it does not require high temperatures or complicated apparatus. The synthesis of γ - Al_2O_3 begins at 700° and of α - Al_2O_3 at 920° . Klyucharov

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On the Synthesis of the Magnesia-Aluminous Spinel

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pointed out the advantage of γ - Al_2O_3 in his publications. The use of other metal salts instead of their oxides reduces the temperature of synthesis. A high degree of dispersion and purity of initial products promote the synthesis of spinel in the solid phase. Mineralizing admixtures reduce the temperature of spinel synthesis. Alekseyeva proved that the presence of polluting admixtures to the initial products hamper the process of spinel formation. Further, it is described in detail how to attain the necessary dispersion of alumina. Fig. 1 shows the thermogram of the spinel layer. The results obtained by the chemical analysis of the free magnesium oxide are shown in fig. 2 and are described in detail. In a table the spinel yield in the case of different temperatures is given and explained in detail. Furthermore, the investigation of the mineralizing action of small quantities of oxide and salts upon the process of spinel formation is described and shown in fig. 3.

Conclusions:

- 1.) A new method of synthesizing magnesia-aluminous spinel has been investigated.
- 2.) The process of spinel formation in layers with differing dispersion of alumina develops practically in the same manner.

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On the Synthesis of the Magnesia-Aluminous Spinel

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- 3.) The increase of stability at temperatures of more than 1400° is accompanied by a considerable increase of spinel yield.
- 4.) Small admixtures of tested salts and oxides exercise but little effect upon the velocity of spinel formation, but, on the other hand, cause a noticeable drop of sintering temperature.

There are 3 figures, 1 table, and 22 references, 12 of which are Slavic.

ASSOCIATION: Chemical-Technological Institute imeni Mendeleyev (Khimiko-tekhnologicheskii institut im. Mendeleyeva)

AVAILABLE: Library of Congress

Card 3/3

1. Spinel-Synthesis
2. Magnesia-aluminous spinel-Properties
3. Magnesia-aluminous spinel-Synthesis

BUDNIKOV, P P.

AUTHOR: Budnikov, P.P.; Shotenberg, S.M.; Azelitskaya, R.D. 101-58-2-3/8

TITLE: A Thermographic Method of Determining the Hydration Heat of Cement (Termograficheskiy metod opredeleniya teploty gidratatsii tsementa)

PERIODICAL: Tsement, 1958, ^{№ 2}, pp 15-18 (USSR)

ABSTRACT: To measure the heat originating from the hydration of cement, the authors describe a thermographic method which they developed by using a Kurnakov pyrometer with two test tubes. One of the tubes contains a standard cement mixture, the other is filled with a cement sample to be hydrated. The test tubes are linked together by a differential thermocouple in a Dewar flask (Figure 1) and connected with a mirror galvanometer. When water is added to the sample, the ensuing increase of temperature is indicated by the galvanometer and then entered on a differential thermogram. When, through heat exchange, the temperature difference between the two cement samples is evened off, the thermogram gives a true picture of the development of hydration heat (Figure 2). This method was successfully used with clinkers of different mineralogical composition (Figure 3).

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. A Thermographic Method of Determining the Hydration Heat of Cement 101-58-2-3/8

There are 6 Soviet references, 3 figures and 3 tables.

AVAILABLE: Library of Congress

Card 2/2 1. Cement-Heat of solution-Measurement

BUDNIKOV, P.P.; ZAGREBNEVA, A.V.

Properties of gypsum calcined at high temperatures. Ukr. khim.
zhur. 24 no.4:528-532 '58. (MIFA 11:10)
(Gypsum)

10

SOV/101-58-6-5/13

AUTHORS: Budnikov, P.P., Semchenko, I.A. and Kholin, I.I.

TITLE: The Rheological Properties of Raw Material Slimes in the Drying Zone of Some Revolving Furnaces (Reologicheskiye svoystva syr'yevykh shlamov v zone sushki nekotorykh vrashchayushchikhsya pechey)

PERIODICAL: Tsement, 1958,¹⁴ Nr 6, pp 15-19 (USSR)

ABSTRACT: The separation of cement dust from the waste gases of revolving furnaces increases the productivity of cement plants. The addition of the dust to the cement slime, destroys the technological process, since the composition of the dust is different from that of the slime. A two-stage dust separation reduces the dust content of the gases to 0.5% at a temperature of 120-140°C. The settling of the dust within the furnace, together with the effect of the temperature, changes the structural-mechanical properties of the slime. The

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SOV/101-58-6-5/13¹¹
The Rheological Properties of Raw Material Slimes in the Drying
Zone of Some Revolving Furnaces

rheological properties of the slime have been studied by means of a viscosimeter to determine the best place for installing electro-filters. The shear stress measured ranged from 50 to 50 . 104 dyn . cm⁻². Table 2 shows the maximum and minimum viscosity characteristics for the structural-mechanical properties of the slimes. It is evident that slimes with a low dispersion are characterized by an increased temperature interval for the maximum increase of their mobility. The properties of slimes with an addition of 10% of dust are shown in table 3. An addition of 10% of dust increases the maximum viscosity 10.4 times. The dispersion and the mineralogical composition of the initial components deter-

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SOV/101-58-6-5/¹²13

The Rheological Properties of Raw Material Slimes in the Drying
Zone of Some Revolving Furnaces

mine the place where the electro-filters should
be installed. There are 3 tables and 1 graph.

Card 3/3

SISYAKYAN, N.M.; FRANK, G.M.; SHCHERBAKOV, D.I., akademik; SIDORENKO, A.V.;
ARTOBOLÉVSKIY, I.I., akademik; IL'IN, V.A., doktor tekhn. nauk;
DOMANITSKIY, S.M., kand. tekhn. nauk; PETROV, A.P.; BUDNIKOV, P.P.

Soviet scientists on the exhibition. Vest. AN SSSR 28 no.11:100-118
N '58. (MIRA 11:12)

1.Chlen-korrespondent AN SSSR. (for Sisayakyan, Sidorenko, Petrov,
Budnikov). 2.Chlen-korrespondent AMN SSSR (for Frank).
(Brussels--Exhibitions)

BUDNIKOV, P.P.; MCHEDLOV-PETROSYAN, O.P.

Conference on the modern methods of analysis of silicates and building materials. Zhur. prikl. khim. 31 no.10:1612-1614 0 '58.

(Silicates) (Building materials)

(MIRA 12:1)

SOV/20-122-2-31 4-

AUTHORS: Budnikov, P. P., Corresponding Member, Academy of Sciences,
USSR, Polinkovskaya, A. I.

TITLE: Investigation of Volcanic Water-Containing Glasses and of Their
Bulging Products (Issledovaniye vulkanicheskikh vodusoderzhash-
chikh stekol i produktov ikh vspuchivaniya)

PERIODICAL: Doklady Akademii nauk SSSR, 1956. Vol 122, Nr 2, pp 289-292
(USSR)

ABSTRACT: In recent years the problem of light porous materials has
gained more and more importance in the field of engineering
and political economy. Among the natural materials which can
be used for the manufacture of products of little weight, the
kinds of glass mentioned in the title: Obsidians, pitchstones,
and pearlites are bound to gain great importance. Such deposits
are extensive in the USSR. A short survey of publications
(Refs 1-7) is given. The volcanic water-containing rocks in-
crease their volume considerably at the burning at high tem-
peratures. Their structure becomes pumiceous and they may serve
as fillers of heat-insulating and light concretes, further as
thermo- and sound-insulating coatings. The present investigation

Card 1

Investigation of Volcanic Water-Containing Glasses and of their Bulging
 notes

deal with the pearlite-rocks of some deposits in the Pacific Region (Primorskiy kray), which were explored by the Primorskoye geologicheskoye upravleniye (Pacific Geological Administration): Bogopol'skoye (District of Kavalerovskiy), then the Malozovskoye (District of the Kavalerovskoye Deposit, District of Partizanskoy, 1941-42) and 1943-44. The chemical composition and the properties of some samples. The porphyry structure characterizes the Bogopol'skiye pearlite (microanalysis carried out by N. S. Maryukova). Quartz, plagioclase, potassium-feldspar, and some other minerals are insemminated in their vitreous mass (Fig. 1a). The Malozovskoye pearlite has a pearlite-fluidal structure. It differs from other samples by the presence of a number of spherulite-like insemminations of a certain mineral with a rather high double refraction. In this case feldspar, i.e. kinds of orthoclase and plagioclase, is insemminated. The pearlite rocks contain water, which is removed at certain intervals. Table 2 shows the endothermic and exothermic effects at heating between 100 and 900°. Under normal pressure and in damp surroundings part of

Para 2.4

SOV/20-122-2-15 22

Investigation of Volcanic Water-Containing Glasses and of Their Bulging Products

the lost water is absorbed again by pearlite. At heating up to 1000° the pearlite loses its hygroscopicity, and its water content amounts only to 0,034 per cent (Tab 3). This proves that the water in pearlite is bound in different ways. This corresponds to the data in the infrared part of the spectrum (Ref 8). Finally the procedure of a bulged pearlite, chemical analyses and its microstructure are discussed (Fig 1v). There are 4 figures, 2 tables, and 8 references, 5 of which are Soviet.

ASSOCIATION: Moskovskiy institut mestnykh stroitel'nykh materialov (Moscow Institute for Local Building Materials)

SUBMITTED: March 12, 1958

Card 3/3

ZORIN, Sergey Petrovich, prof., doktor tekhn.nauk; KRAUZE, Sergey Nikolayevich, kand.geologo-mineralog.nauk; BUDNIKOV, P.P.; red.; VAKHRUSHEV, G.V., doktor geologo-mineralog.nauk, prof., zaslu-zhennyy deyatel' nauki Bashkirskoy ASSR, red.; OSTASHEVSKAYA, G.A., red.; ZAYNULLINA, G.Z., tekhn.red.

[Gypsum from Bashkiria and its use in construction] Gipsy Bashkirii i ikh ispol'zovanie v stroitel'stve. Pod red. P.P. Budnikova i G.V.Vakhrusheva. Ufa, Bashkirskoe knizhnoe izd-vo, 1959. 229 p. (MIRA 13:3)

1. Chlen-korrespondent Akademii nauk SSSR; deystvitel'nyy chlen Akademii nauk USSR (for Budnikov).
(Bashkiria--Gypsum)

BUDNIKOV, P.P.

21(4) PHASE I BOOK EXPLORATION 807/2713

International Conference on the Peaceful Uses of Atomic Energy. 2nd, Geneva, 1958

Безопасность использования ядерной энергии в реакторных установках. (Russian text about nuclear energy safety, 1959, 670 p., Series: 12: Treaty, vol. 3, 6,000 copies printed.)

MA. (Title page): A.A. Kochur, Academician, A.P. Vinogradov, Academician, V.A. Yemel'yanov, Corresponding Member, USSR Academy of Sciences, and A.P. Zerkov, Doctor of Technical Sciences; Ed.: E.I. Maslov. Publisher: V.V. Pervov and O.A. Peshlakov; Tech. Ed.: E.I. Maslov.

FOREWORD: This volume is intended for scientists, engineers, physicians, and biologists working in the production and peaceful application of atomic energy for power, industry, and agriculture. It is intended for students of schools of higher technical education where the subject is taught; and for people interested in atomic science and technology.

CONTENTS: This is volume 3 of a 6-volume set of reports on atomic energy, presented by Soviet scientists at the Second International Conference on the Peaceful Uses of Atomic Energy, held in Geneva from September 1-8, 1958. Volume 3 consists of two parts. The first part, edited by A.A. Kochur, is devoted to geology, prospecting, concentration, and processing of nuclear source material. The second part, edited by O.A. Peshlakov, includes 27 reports on metallurgy, metallography, processing of nuclear fuels and reactor metals, and neutron irradiation effects on materials. The title of the individual reports is given in the table of contents. The title of the official English language edition on the Conference proceedings. See 807/2681 for the titles of the other volumes of the set.

BUDNIKOV, P.P. and A.A. Yel'digiz. Investigating the Reactions of Uranium Dioxide and Plutonium Dioxide Chlorination by Carbon Tetrachloride (Report No. 2197)

YEMEL'YANOV, V.A., L.A. Yermakova, and A.A. Maslov. Phase Diagrams for the $UO_2 - ZrO_2$ and the $ThO_2 - ZrO_2$ Systems (Report No. 2190)

BUDNIKOV, P.P., S.O. Tsvetkovskiy, and V.I. Koshakovskiy. Binary Phase Diagrams ($UO_2 - Al_2O_3$; $UO_2 - SiO_2$; and $UO_2 - MgO$) (Report No. 2193)

SEKRETAR, G.I., V.I. Plochev, Z.P. Shchegolev, A.M. Koshakovskiy, and L.I. Koshakovskiy. The Influence of Fertilization Methods on the Structure and Properties of Uranium (Report No. 2197)

YEMEL'YANOV, V.A., and Z.A. Peshlakov. Phase Diagrams of Certain Ternary Systems of Uranium and Thorium (Report No. 2043)

Card 6/11

AUTHORS: Budnikov, P.P. and Gershkov, V.S. SOV/80-59-1-3/22

TITLE: On the Interaction of Aluminates and Alusoferrites of Calcium With Gypsum (O vzaimodeystvii aluminatov i alusoferritov kal'tsiya s gipsum)

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Nr 1, p. 21-26 (USSR)

ABSTRACT: The authors studied the products of the joint hydration of aluminates and alusoferrites of calcium with gypsum in order to detect the phase transformations of sulfate-containing compounds which are formed in clinker materials. The following materials were experimented with: $6\text{CaO} \cdot 2\text{Al}_2\text{O}_3 \cdot \text{Fe}_2\text{O}_3$; $4\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot \text{Fe}_2\text{O}_3$; $6\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot 2\text{Fe}_2\text{O}_3$; $2\text{CaO} \cdot \text{Fe}_2\text{O}_3$ and $3\text{CaO} \cdot \text{Al}_2\text{O}_3$. In order to find out the interaction kinetics of clinker materials with calcium sulfate and to determine the products of their joint hydration, the above mentioned minerals, in a quantity of 5 g each, were poured over with the limegypsum mortar taken in a quantity of 1,000 ml. After 3 months of hydration the solid phase was separated from the solution and divided into 2 fractions. The crystals of sulfate-containing compounds were then subjected to the X-ray analysis by the powder method and to the thermal analysis with the aid of Kurnakov's differential pyrometer. By these means it was established that the hydration products contain calcium hydrosulfocaluminate and hydrosulfoferrite and also iron-containing clinker minerals.

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SOV/SC-99-1-3/11

On the Interaction of Aluminates and Alumoferrites of Calcium With Gypsum

- . The calcium hydrosulfoferrite proved to be the most stable with respect to raised temperatures. The formation of this thermally stable compound leads to the binding of free gypsum which is separated due to the decomposition of the calcium sulfoaluminate. There are 2 thermograms, 1 roentgenogram, 1 diagram, 2 tables and 2 American references.

SUBMITTED: June 13, 1957

Card 2/2

15(2)

AUTHOR: Budnikov, P. P. Abstracter

SOV/72-59-3-18/19

TITLE: "New Technique in the Production of Porcelain and Faience"
("Novaya tekhnika v proizvodstve farfora i fayansa")

PERIODICAL: Steklo i keramika, 1959, Nr 3, pp 47-47 (USSR)

ABSTRACT: This is a discussion of the book mentioned in the title, by
N. N. Gorodov, G. A. Kovel'man and I. Ya. Yurchak.

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15(2)

SCV/72-59-5-23/23

AUTHOR:

Budnikov, P. P., Member of the AS UkrSSR

TITLE:

"Molten Cast Refractory Products" ("Plavlenyye lityye ogneupory")

PERIODICAL:

Steklo i keramika, 1959, Nr 5, p 44 (USSR)

ABSTRACT:

This is a review of the book by A. A. Litvakovskiy mentioned in the title (Gosstroyizdat, M. 1959, see footnote). There is 1 Soviet reference.

Card 1/1

15(2)

AUTHORS:

Budnikov, P. P., Bogomolov, B. N.

SOV/131-59-6-6/15

TITLE:

The Role of Periclase in Forsterite Refractories Products
(Rol' periklaza v forsteritovykh ogneuporakh)

PERIODICAL:

Ogneupory, 1959, Nr 6, pp 263-267 (USSR)

ABSTRACT:

In the present article, the authors examine the influence of MgO-surplus in forsterite refractories products with regard to their interaction with cement clinkers of various mineralogical compositions. The chemical compositions of fire-proof forsterite products of the works "Magnezit" is given in table 1, that of the clinkers used for this purpose can be seen in table 2. Table 3 gives the heating conditions of the specimens, and figure 1 shows the test specimens. The figures 2, 3, 4, and 5 show periclase in various forms. Conclusion: Periclase represents the part of forsterite refractories products with the highest reactivity. There are 7 figures, 3 tables, and 5 Soviet references.

ASSOCIATION:
Card 1/1

Khimiko-tekhnologicheskii institut im. Mendeleyeva
(Chemical Technological Institute imeni Mendeleyev); NIITsement

15(2)

AUTHORS:

Budnikov, P. P., Zvyagil'skiy, A. A.

SOV/72-59-7-2/19

TITLE:

The Influence of the Additions of BeO and Commercial Alumina on the Main Properties of the Electrical Engineering Porcelain (Vliyaniye BeO i tekhnicheskogo glinozema na osnovnyy. svoystva elektrotekhnicheskogo farfora)

dobavok

PERIODICAL:

Steklo i keramika, 1959, Nr 7, pp 3 - 7 (USSR)

ABSTRACT:

The purpose of this paper was the completion of the studies carried through formerly by P. P. Budnikov (Footnote 1). The initial mass contained 32% feldspar, 24% quartz, and 44% clayey materials. As additions BeO, commercial alumina and asharite ore were used. The samples were dried at a temperature of 110°C in the thermostat and burned at a temperature of 1220 till 1450° in reverberatory furnaces. In table 1 the water absorption and the weight by volume of the porcelain samples with addition of BeO are given burned at different temperatures. In figure 1 the linear shrinkage at different burning temperatures is given. In table 2 and figure 2 the water absorption and the weight by volume of the samples with addition of commercial alumina are given. These values correspond to the investigation results of the Chair of Ceramics and Refractories of the MKhTI imeni Mendeleyev as may be seen from the investigation of D.N. Poluboyarinov

Card 1/3

The Influence of the Additions of BeO and Commercial Alumina ^{SOT/72-59-7-2/19}
on the Main Properties of the Electrical Engineering Porcelain

(Footnote 2). In table 3 the average values of the bending strength of samples are given which were burned at optimum temperatures. The addition of small amounts of BeO and commercial alumina effects a lowering of the modulus of extension (Fig. 3) corresponding to investigations of P. P. Budnikov, S. G. Trekhsvyatskiy and A. M. Cherepanov (Footnote 3). Furthermore the authors give the change of the electro-physical properties of the porcelain bodies in dependence of the composition and amount of the additions (Table 4) by mentioning the study of S. I. Skanavi (Footnote 4). The dielectric losses are lowered by the addition of small amounts of Be₂O₃ as it results from the investigations of G. N. Voronkov, A. A. Zvyagil'skiy, N. F. Kretova (Footnote 5). Conclusions. An addition of small amounts of BeO (0.5 till 1%) lowers both the sintering temperature for 40 till 60 degrees and the coefficient of thermal expansion and increases the heat stability and the electrophysical characteristics of the electric porcelain. An addition of small amounts of B₂O₃ (up to 1. %) into the highly aluminous porcelain bodies causes a strong mineralizing effect and

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The Influence of the Additions of BeO and Commercial Alumina SOV/72-59-7-2/19
on the Main Properties of the Electrical Engineering Porcelain

allows to obtain electric porcelain of high values and to improve
strongly its insulating properties. There are 3 figures, 4 tables,
and 5 Soviet references.

Card 3/3

BUDNIKOV, P.P.; KUZNETSOVA, I.P.

Production of quick-setting sement and alumina form kyanite and clays.
Trudy MKHTI no. 27:266-271 '59. (MIRA 15:6)
(Cement) (Alumina)

BUDNIKOV, P.P.; SAVEL'YEV, V.G.

Investigation of the properties of refractory concrete with barium-
aluminate binder. Trudy MKHTI no.27:272-279 '59. (MIRA 15:6)
(Concrete--Analysis)

BUDNIKOV, P.P., akademik

Building materials industry in the Polish People's Republic. Khim.
nauka i prom. 4 no.4:537-539 '59. (MIRA 13:8)

1. Akademiya nauk USSR.
(Poland--Building materials industry)

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77285
SOV/63-4-6-19/37

AUTHOR: Budnikov, P. P.

TITLE: Conference of Nitrogen Industry Workers

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4,
Nr 6, pp 795-796 (USSR)

ABSTRACT: The conference was held in Stalinogorsk in April 1959. The opening of the meeting by I. M. Korotenko, chairman of the Tula council of National Economy, was followed by the introductory speech by G. V. Uvarov, deputy chairman of the State Committee on Chemistry. The following reports were presented: B. G. Ovcharenko (head of the Administration for Reprocessing Natural Gas and Nitrogen, of the State Committee on Chemistry), "Basic Trends in the Development of Nitrogen Industry for 1959-1965 in Accordance with the Resolutions of the Plenary Session of the Central Committee of the Communist Party of the Soviet Union"; N. A. Simulin (director of the State Institute of Nitrogen Industry), "The State of Scientific Research, Experimental and Design Projects and Tasks of

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Conference of Nitrogen Industry Workers

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the State Institute of Nitrogen Industry to Secure the Development of the Nitrogen Industry"; F. V. Turchin (Professor), "Perspectives for the Use of Various Nitrogen Fertilizers in Agriculture"; I. I. Burlachenko (chief engineer of Chirchik Combine), "Concerning Measures to Decrease the Injury and Sickness Rates at the Chirchik Electrochemical Combine"; V. P. Ukhanev (head of carbide department of Lisichansk Combine), "Concerning Experience in Organizing Competition for the Title of 'Shop of Communist Labor'"; K. I. Upadyshev (chief engineer of the synthesis and gasification department of State Institute of Nitrogen Industry), "New Project Decisions Concerning Ammonia Production Layouts"; Ya. S. Kazarnovskiy and A. Ye. Volkov, "State of Scientific Research and Designs for the Production of Acetylene and Synthetic Gas"; D. Ya. Sukhamesov, "Experience With the Conversion of Stalinogorsk Chemical Combine to Natural Gas"; A. G. Leybush (State Institute of Nitrogen Industry), "Catalytic Conversion of Hydrocarbon Gases under Pressure"; B. V. Vol'ter (TsNIIKA), "Concerning Testing of Experimental Methods of Automation of Ammonia Production and

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Conference of Nitrogen Industry Workers

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Plans for Future Work"; I. L. Zhuravskiy, "Concerning the Work Conducted by the State Institute of Nitrogen Industry, Lisichansk Branch of OKBA and Chemical Combine, in Testing Experimental Methods of Automation of Ammonia Production and Plans for Future Work"; A. P. Shtyk, "Concerning the Experience of Operators of Coke Gas Separating Equipment"; A. A. Matveyenko (Odessa Polytechnical Institute), "Concerning the Rational Shape of Surface Heat Exchangers in Ammonia Synthesis Towers"; S. M. Gabrichidze, "From Experience of Mastering the Conversion of Methane at Rustavi Nitrogen Fertilizer Plant"; B. G. Kholin (Lisichansk Chemical Combine), "A New Construction of Burner for Thermooxidizing Pyrolysis of Methane"; P. A. Platonov and A. T. Zotov (State Institute of Nitrogen Industry), "New Project Decisions Concerning the Production of Nitric Acid and Nitrogen Fertilizers"; V. A. Ulyayev, "Automation of the Production of Ammonium Nitrate at Lisichansk Chemical Combine and Industrial-Economic Evaluation of the Work"; V. V. Vasil'yev, "Concerning Automation of Control and Adjustment of the

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Conference of Nitrogen Industry Workers

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Production of Weak Nitric Acid at Stalinogorsk Chemical Combine"; G. Z. Fayn, "Concerning the Testing of Experimental Automation Methods of Production of Weak Nitric Acid at Dneprodzerzhinsk Nitrogen Fertilizer Plant"; N. A. Gol'dberg, "The State of Scientific Research, Experimental and Project Work for the Production of Urea"; A. I. Sverdlova, "Results of Work Performed at Experimental-Industrial Department of Complex Fertilizers at Dneprodzerzhinsk Nitrogen Fertilizer Plant"; I. A. Makarov, "Experience in Storage and Transportation of Liquid Nitrogen Fertilizers"; Z. A. Furman (State Institute of Nitrogen Industry), "The State of Scientific Research, Experimental and Project Work for the Production of Caprolactam"; A. A. Beer (State Institute of Nitrogen Industry), "The State of Scientific Research and Experimental Work for the Synthesis of Aminoanthranic Acid"; M. I. Zhutovskiy, "New Transmitters for Measurement of Consumption and Pressure, Pneumatic Electricity-Forming Devices, Protective Relays, and Other Guarding Electronic Devices Used for Controlling and Regulation

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Conference of Nitrogen Industry Workers

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of Technological Parameters"; B. M. Yakobson, "Guarding Electronic Devices for Controlling and Regulation of Technological Parameters"; Ya. V. Leshchin (Director of Gorlovka Nitrogen Fertilizer Plant), "A New Pay Schedule for Workers and Shortening of the Working Day at Gorlovka Nitrogen Fertilizer Plant"; S. V. Sadovskiy (Director of Stalinogorsk Chemical Combine), "Stalinogorsk Chemical Combine Fulfills Its Obligations". About 400 representatives participated in the conference, among them 120 representatives from research and design institutes and universities.

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77286
SOV/63-4-6-20/37

AUTHOR: Budnikov, P. P. (Academician of the Academy of
~~Sciences of the UkrSSR~~)

TITLE: In The Khar'kov District Office

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4,
Nr 6, pp 796-797 (USSR)

ABSTRACT: The main activities of Khar'kov district office (of All-
Union Chemical Society imeni D. I. Mendeleev) were
carried out mainly by 12 sections: (1) general, physical,
and organic chemistry; (2) chemical technology; (3)
teaching of chemistry in secondary schools; (4) pharma-
ceutical chemistry; (5) hormone chemistry; (6) chemical
reagents; (7) agricultural chemistry; (8) chemical equip-
ment; (9) analytical chemistry; (10) ceramics; (11) physi-
cal chemistry of silicates; (12) bonding materials. The
following seminars were at work: theory of solutions
(under N. A. Izmaylov); theory of chemical bonds (under
A. Ye. Lutskiy); theory of solid melts (under V. I.
Minenko); plastics (under D. V. Bezuglyy); spectrographic

Card 1/2

In The Khar'kov District Office

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analysis, etc. Academician P. A. Rebinger gave a lecture for the members of the society concerning physico-chemical mechanics, and professor Bol'shakova, on the theory of absorption. Since 1958 the office has been occupied with problems of utilizing the natural gas from Shebelinka. The construction of Shebelinka Chemical Combine is included in the Seven-Year Plan.

Card 2/2

BUDNIKOV, P.P., glavnyy red.

Conference on the expansion of facing ceramics production.

Stroi. mat. 5 no.1:40-3 of cover. Ja '59.

(MIRA 12:1)

(Ceramics)

BUDNIKOV, P.P., akademik; POLINKOVSKAYA, A.I., kand. tekhn. nauk

Using perlites in making lightweight aggregates. Stroi. mat.
5 no. 3:7-11 Mr '59. (MIRA 12:5)

1. AN USSR, chlen-korrespondent AN SSSR (for Budnikov).
(Perlite (Mineral)) (Lightweight concrete)

BUDNIKOV, P.P., akademik; KUZNETSOV, A.M., kand. tekhn. nauk

Testing aluminum slags and using them in making binding
materials. Stroi. mat. 5 no.5:30-31. My. 199. (MIRA 12:8)

1. AN USSR, chlen-korrespondent AN SSSR (for Budnikov)
(Slag-Testing) (Binding materials)

BUDNIKOV, P.P., akademik; POLINKOVSKAYA, A.I., kand.tekhn.nauk;
BENUNI, A.A., inzh.; PETRIKHINA, G.A., inzh.

Expanding clays and volcanic rocks in the fluidized bed.
Stroi.mat. 5 no.9:31-33 S '59. (MIRA 12:12)

1. AN USSR, chlen-korrespondent AN SSSR (for Budnikov).
(Building materials) (Fluidization)

BUDNIKOV, P.P.

"Ceramic floor tiles" by L. IA. Mishulovich. Reviewed by P.P.
Budnikov. Stek. i ker. 16 no.2:48 F '59. (MIRA 12:1)
(Tiles) (Mishulovich, L. IA.)

5(4)

SOV/69-21-1-2/21

AUTHORS: Budnikov, P.P. and Kravchenko, I.V.

TITLE: Research on The Hydration Processes of Calcium Monoaluminat (Issledovaniye protsessov gidratatsii monoal'yuminata kal'tsiya).

PERIODICAL: Kolloidnyy zhurnal, 1959, Vol XXI, Nr 1, pp 9-17 (USSR)

ABSTRACT: The article deals with research into the hydration processes of calcium monoaluminat. The results of the experiments, done at various temperatures and humidity conditions and at different ratios between the solid and liquid phases, are described in detail. They showed (tables 1-3 and thermograms 1-3) that the general hydration process and the recrystallization rate of hexagonal calcium hydroaluminates into the cubic form were accelerated with a rise in the temperature and humidity, especially at the temperature of 45° and under water conditions. The results also showed that the strength properties of the hydrated calcium monoaluminates are independent of

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SOV/69-21-1-2/21

Research on The Hydration Processes of Calcium Monoaluminate

their liquid-solid ratio. The analysis of a 3-month-old sample, hardened in water at 45°, showed that the hard mass was composed mainly of $3\text{CaO} \cdot \text{Al}_2\text{O}_3 \cdot 6\text{H}_2\text{O}$, and of the gibbsite. The strength of the sample increases with time, and after 1 year exceeds the strength of samples hardened under different conditions. 3 sets of thermograms and 9 references, 4 of which are Soviet, 2 French, 2 German and 1 English.

ASSOCIATION: Nauchno-issledovatel'skiy institut tsementnoy promyshlennosti (The Scientific Research Institute of the Cement Industry), Moscow.

SUBMITTED: June 11, 1957.

Card 2/2

BUDNIKOV, P.P.; GORSHKOV, V.S.

Reactions of calcium aluminates and aluminate ferrates with
gypsum. Zhur.prikl.khim. 32 no.1:21-26 Ja '59. (MIRA 12:4)
(Calcium aluminates) (Calcium aluminate ferrate) (Gypsum)

AUTHORS:

Rudnikov, P.P.; Vorobeyev, M.G.

SOV/AC-34-2-1/55

TITLE:

Study of the Hydration Rate of Magnesium Oxide Burnt at Different Temperatures (Issledeniye skorosti gidratatsii okisi magniya, obozhzhennoy pri razlichnykh temperaturakh)

PERIODICAL:

Zhurnal Prikladnoi Khimii, 1959, Vol XXXII, Nr 2, pp 153-158 (USSR)

ABSTRACT:

A high percentage of MgO in clinkers is the cause for the destruction of hardening cement. The rate of hydration of MgO and its relation to the burning temperature has been investigated. MgO which is burnt at 800°C is to 75% hydrated after moist storage of one day. An increase of the burning temperature to 1400°C reduces the hydration rate sharply. The addition of a weak MgCl₂ solution increases the rate of hydration of MgO. At the addition of MgSO₄ the thermograms show the presence of other new formations. Autoclave processing at 8 atm ensures the complete hydration of MgO.

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SOV/80-32-2-2/'56

Study of the Hydration Rate of Magnesium Oxide Burnt at Different Temperatures

There are 5 graphs, 1 histogram, 1 table, and 4 Soviet references.

SUBMITTED: June 13, 1957

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15.2200

75653
SOV/80-32-10-2/51

AUTHORS: Budnikov, P. P., Bogomolov, B. N.

TITLE: Fosterite Titanium-Containing Refractories

PERIODICAL: Zhurnal prikladnoy khimii, 1959, Vol 32, Nr 10, pp 2139-2148 (USSR)

ABSTRACT: This is a study of minimum periclase-content fosterite refractories with preservation of their valuable properties and improvement of their thermal properties. Valuable properties include: good refractory properties, high temperature of deformation under load, low thermal conductivity, tendency to form strong and dense coatings, and cement-clinker resistance. Periclase saturation with clinker components weakens refractory structure. Two types of batches were prepared: those containing 0-20% "MK" brand MgO, and those with a 0.5-4% technical TiO₂ content. The batches were mixed in a laboratory ball mill, moistened with sulfite-alcohol slops (1.24 g/cm³ mix), and formed. The bricks were dried at 125° and burned at 1,650°. The effect of TiO₂ and free periclase content is shown in Figs. 1 and 2.

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Fosterite Titanium-Containing Refractories

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SOV/80-32-10-2/51

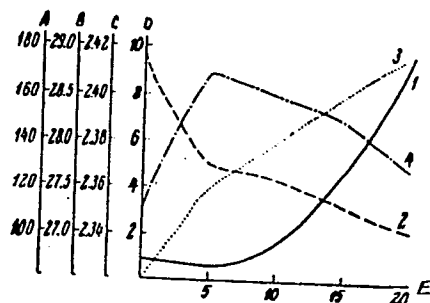


Fig. 1. Properties of Fosterite refractories with different MgO content: (A) strength (kg/cm²); (B) porosity (%); (C) density (g/cm³); (D) thermal stability. (E) MgO content (%); (1) strength; (2) porosity; (3) density; (4) thermal stability.

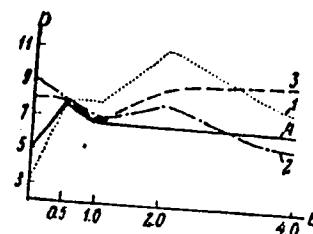
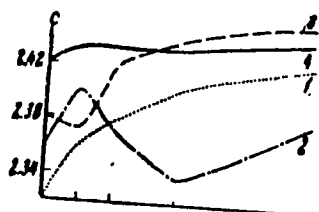
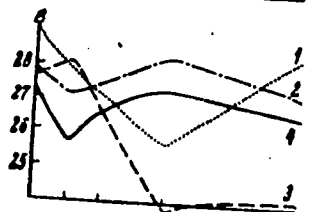
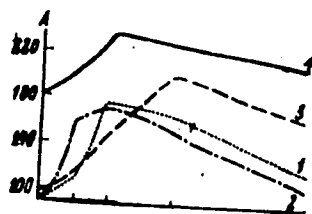
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Fosterite Titanium-Containing Refractories

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Fig. 2. Properties of fosterite. titanium-containing refractories: (A) Strength (kg/cm^2); (B) porosity (%); (C) density (g/cm^3); (D) thermal stability; (E) TiO_2 content (%). MgO content (%): (1) 0; (2) 5; (3) 10; (4) 20.



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Fosterite Titanium-Containing Refractories

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Study of microstructure and phase composition by X-rays with a URS-501 unit showed fosterite concretions in all cases. Effect of MgO content: 0% porous structure; 5%, appearance of magnesite and glass formation; >10% MgO, in addition to monticellite, hematite, magnetite, free periclase, and an unidentified MgO-containing crystal appear, and the magnoferrite content is increased. Effect of TiO₂: 0.5%, traces of Mg titanates; 1 to 2%, appearance of monticellite and Mg titanates, improved fosterite concretion; 4%, Mg titanate dendrites increase and magnetite crystals cause cracks in the concretion. Clinker resistance: a portland cement clinker from the "Gigant" ("Giant") Plant, containing (in %): C₃S, 52.3; C₂S, 21.2; C₃A, 11.3; C₄Ar, 11.6; MgO, 3.4; ³CaSO₄, 0.67 (Abstracter's note: This is the way these contents are given in the original.) was the reagent. Results: 0-5% MgO, negligible interaction with clinker; 20% MgO, surface formation of magnetite, monticellite, and pyroxenes, periclase grain dispersion;

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Fosterite Titanium-Containing Refractories

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SOV/80-32-10-2/51

0% TiO_2 , magnetite and pyroxene formation; 1 to 2% TiO_2 , formation of monticellite and magnesium titanates. To study the effect of mix particle size, the samples given in Fig. 2 were compounded, moistened with sulfite-alcohol slops (1.243 g/cm^3) and molded in a PG-100 press at 850 kg/cm^2 . Table 4 shows the effect of particle size on the properties of these refractories. Conclusions: refractories containing 5-7% periclase and 1-2% TiO_2 are dense, and highly heat-, and clinker-resistant. Those with up to 2% TiO_2 are suitable for use as cement rotary-kiln lining. Presence of more than 10% MgO lowers clinker resistance. Uzberg, A. I., Faynerman, B. A., and Mitrokhina, N. S., took part in the experiment. There are 7 tables; 6 figures; and 9 Soviet references.

SUBMITTED:
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April 22, 1959

Fosterite Titanium-Containing Refractories

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Cumulative screen analysis

PARTICLE SIZE (IN mm)	CUMULATIVE FRACTION RETAINED (IN %)					
	1	2	1	0.5	0.5	—
1	—	15	20	10	55	100
2	—	5	15	20	60	100
3	—	—	10	25	65	100
4	—	—	—	30	70	100
CONTROL	5	15	20	5	55	100

Table 2.

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Fosterite Titanium-Containing Refractories

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Table 4

Properties of fosterite refractories of various particle sizes in the batch

BATCH	GRAIN SIZE BATCH NO	BULK DENSITY	SHRINKAGE ON BURNING		COMPRESSIVE STRENGTH (kg/cm^2)	APPARENT POROSITY (IN %)	REFRACTORY DENSITY	WATER ABSORPTION (IN %)
			ALONG HEIGHT	ALONG DIAMETER				
I								
93% DUNITE, 7% CALCINED- MAGNESIA	1	2.627	1.24	1.48	150	28.5	2.35	12.0
	2	2.610	1.10	1.32	148	29.1	2.35	12.4
	3	2.592	1.68	1.57	150	28.6	2.36	12.2
	4	2.601	1.84	1.33	202	28.2	2.38	11.8
II								
93% DUNITE, 7% CALCINED- MAGNESIA 1% (OF 100%) TiO_2	1	2.640	1.35	1.84	200	27.2	2.30	11.4
	2	2.618	1.36	1.95	212	28.0	2.39	11.7
	3	2.628	1.65	1.34	257	27.6	2.40	11.5
	4	2.605	2.28	2.18	288	27.9	2.41	11.6
III								
100% DUNITE, 1% (OF 100%) TiO_2	1	2.618	1.67	1.77	162.5	28.3	2.38	11.8
	2	2.623	1.36	1.48	178	28.6	2.39	12.0
	3	2.608	1.30	1.51	203	29.4	2.37	12.4
	4	2.576	3.30	1.92	286	27.5	2.41	11.4
CONTROL BATCH: 75% DUNITE, 25% CALCINED- MAGNESIA	PLANT BATCH	2.695	1.43	1.22	233	25.8	2.47	10.5

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BUDNIKOV, P.P. (Moskva)

Urgent problems in the study and production of silicate materials.
Priroda 48 no.6:44-46 Je '59. (MIRA 12:5)

1.Chlen-korrespondent AN SSSR.
(Silicates)

SOV/20-126-2-31/64

5(2)
AUTHORS: Budnikov, P. P., Corresponding Member AS USSR,
Gorshkov, V. S.

TITLE: The Influence of Temperature on the Stability of Calcium Sulphoaluminate and -Sulphoferrite (Vliyaniye temperaturnykh usloviy na ustoychivost' sul'foalyuminata i sul'foferrita kal'tsiya)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 126, Nr 2, pp 337 - 340 (USSR)

ABSTRACT: The changes in the physical phase of water, in the pores and capillaries of solid cement, forms one of the main factors leading to the destruction of cement stone through an alternating freezing and thawing. A no less important reaction on the frost-resistance of cement stone, which is produced on the principle of a sulphate binding agent, is, that this adhesive must have the stability referred to in the title. Both adhesives named in the title, are formed in considerable quantities in solid cement. The physical qualities of the said crystalline hydrates, are decided in the first place by the arrangement of the water molecules in the

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SOV/20-126-2-31/64

The Influence of Temperature on the Stability of
Calcium Sulphoaluminate and -Sulphoferrite

structures, and by means of adhesion of these molecules. The position of these molecules was determined by radiography (Ref 1). In natural-mineral ettringite they form tiny pillars and canals which often disappear through draining. The authors wished to ascertain the changes in both the crystalline hydrates, named in the title, on passing zero point, and moreover, to clarify, if these hydrates are stable chemical adhesives. For this purpose, the two hydrates were synthesized as high-sulphate forms. A) Sulphoaluminate by two ways. It was thereby determined, that the mutual effect of saturated aqueous solutions of filtered salts $3\text{CaO} \cdot \text{Al}_2\text{O}_3$ and

$\text{CaSO}_4 \cdot 0.5\text{H}_2\text{O}$ accrued sulphoaluminate crystals, correspond, according to radiography, to natural-mineral ettringite. Calcium sulphoferrite was synthesized by 3 ways. The resulting samples of both hydrates produced in this way, were alternately frozen for 3h at -17° , and then thawed each for 2h at $20 \pm 2^\circ$. This was repeated 5, 10, and 15 times. Then the contents of the samples in free calcium sulphate was determined (Table 1). It may be seen from table 1 that an alter-

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The Influence of Temperature on the Stability of
Calcium Sulphoaluminate and -Sulphoferrite

SOV/20-126-2-31/64

nating effect of temperature, above and below zero, on hydrated clinker material, in the presence of calcium hydro-sulphate, leads to a physical destruction of the structure achieved by hydration, without both crystalline hydrates being chemically decomposed. Observations on micropreparations have shown that by changing temperatures the crystals are decomposed by the presence of liquid phase around, and also without such a phase (Figs 1 - 3). There are 3 figures, 1 table, and 3 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleeva (Moscow Chemical-Technological Institute imeni D. I. Mendeleev)

SUBMITTED: March 6, 1959

Card 3/3

5(2)
 : AUTHORS: Budnikov, P. P., Corresponding Member AS USSR, SOV/20-128-1-22/58
Tresvyatskiy, S. G., Kushakovskiy, V. I.
 TITLE: Investigation of Phase Transformation of Uranium Oxides in Air
 PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 1, pp 85-88
 (USSR)
 ABSTRACT: In the present paper the decomposition of uranoso-uranic oxide occurring with heating was investigated, as there are only contradictory data on this problem (Refs 1-6). The decay temperature was determined by means of continuous weighing of uranoso-uranic oxide in tabloid form or pulverized during heating within the temperature range of room temperature up to 1600-1900°. The curves of change in weight of uranoso-uranic oxide on heating and cooling in air are given in figures 1 and 2. For the determination of phase composition at different temperatures hardened samples were used. The results of investigation are given in table 1. The results of two series of investigation indicated that uranoso-uranic oxide loses oxygen to a large extent already at 900°. However, up to 1450° the quantity of oxygen still corresponds to the formula $UO_{2.63}$. The radiogram taken of the oxide of this

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Investigation of Phase Transformation of Uranium
Oxides in Air

SOV/20-128-1-22/58

composition differs from the radiogram of U_3O_8 . At still higher temperatures, up to the boiling point, U_4O_9 at atmospheric pressure is in equilibrium with oxygen. The oxygen content within this oxide decreases with temperature increase. This causes a lengthening of the lattice spacing (Fig 3). The results found made it possible to complement the high-temperature range for the phase diagram of the U-O system (Fig 4), plotted by Akkermann (Ref 2). The samples $UO_{2.093}$, $UO_{2.14}$, and $UO_{2.08}$ calcined within the vacuum (10^{-1} torr) at 1050, 1100, and 1600° proved to be two-phase and consisted of UO_2 and U_4O_9 . However, it is possible that the two phases found by the authors during the decomposition of the solid solution have been formed due to too slow cooling. There are 4 figures, 1 table, and 6 references.

SUBMITTED:

June 2, 1959

Card 2/2

BUDNIKOV, A., inzh.; OSADCHIY, F., inzh.; POTOKIN, A.; DMITRIYEV, A., inzh.;
BRUZH, R.; YELIZAR'YEV, B.

Exchange of experience. Avt.transp. 42 no.2:47-50 F '64.
(MIRA 17:3)

CHUYSKIY, V., general-mayor voysk svyazi; BUDNIKOV, A., inzhener-mayor

Service logs and storage batteries. Tekh. i voprosy. no. 3:70-71
Mr '64. (MIRA 17:8)

6(2)

SCV/111-59-8-22/

AUTHOR: Budnikov, A. M., Chairman

TITLE: From the Experience of the Permanent Production Conference

PERIODICAL: Vestnik svyazi, 1959, Nr 8, pp 26-27 (USSR)

ABSTRACT: This article is an account of the activities of the Permanent Production Conference of the Kalinin pochtovo-telegrafnaya kontora (Post and Telegraph Office), elected in January, 1958, and consisting of 50 members, 7 of whom are on the presidium. At the first two regular sessions measures for improving delivery of post, telegrams and the press were discussed. Representatives of the gorodskoy komitet partii (Municipal Party Committee), Ispolkom gorsoveta (Executive Committee EC of the Municipal Council), the Rayonnyy komitet partii novopromyshlennoy rayonag. Kalinina (District Party Committee of the New Industrial District of the City of Kalinin), workers of the provincial Communications Administration, "profgrupgi", and 90 postmen attended the sessions. A questionnaire was distributed to the population of the city at

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From the Experience of the Permanent Production Conference SOV/111-59-8-22/

the recommendation of the conference, and the suggestions received in answer were used as a basis for improving service in the city. These measures are outlined in the article. In addition, conferences under the auspices of all the Executive Committees of the Raysovery (District Councils) in the city, were held, attended by EC member house-management workers, representatives of street committees and the ZhKO, and workers of the gorodskie ot-deleniya svyazi (municipal communications divisions), at which measures for improving delivery of post, press, telegrams and pension letters were discussed. Results are discussed briefly. In October, 1958 a production conference devoted to preparation of communications enterprises for winter work was held. The long-term (seven year) plan for the Kalinin Post and Telegraph Office was discussed at a conference in the beginning of 1959. Members of the conference introduced proposals for automation of telegram transmission, increasing telegraphic communications facilities in the municipal communications divisions, expansion of the network of communica-

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From the Experience of the Permanent Production Conference SOV/111-59-8-22/50

tions sections in the city and villages, and installation of conveyors in the insurance division. A production conference in April, 1959 proposed a number of measures for radically improving delivery of the press in the city. The regular production conference is devoted to the question of safety measures and rationalization and inventive work. Of 88 proposals received at past conferences, 73 have been, and 15 are being implemented. The production conferences, states the author, follows the work of implementing these proposals. At the end of 1958 a plenum of the Obkom profsoyuza (Oblast Committee of the Union) heard a report on the work of the Permanent Production Conference; a report was also made at the Gorodskaya konferentsiya svyazistov pochtovo-telegrafnoy kontory (municipal conference of communications workers of the Post and Telegraph Office). There is 1 photograph.

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From the Experience of the Permanent Production Conference SOV/111-59-3-22/30

ASSOCIATION: Postoyanno deystvuyushcheye proizvodstvennoye soveshchaniye Kalininskoy pochtovo-telegrafnoy kontory (Permanent Production Conference of the Kalinin Post and Telegraph Office)

Card 4/4

BUDNIKOV, A.S.

1. BUDNIKOV, A. S., Eng.; KOSTANOVICH, V. M., Eng.
2. USSR (600)
4. Mixing Machinery
7. Mobile plaster mixing unit. *Biul. stroi.* 15, No. 5, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

С. 111-112, 114.

BUDNIKOV, A.S., inzh.; POSYSAYEV, A.I., inzh.; BELOV, B.A., inzh.;
FOKIN, M.V., inzh.

S-285A continuous-action automatically controlled mobile
motar-mixing unit. Rats. i izobr. predl. v stroi. no.2:105-109
'57. (MIRA 11:1)

1. TSentral'naya nauchno-issledovatel'skaya laboratoriya - 3 (for
Budnikov, Posysayev). 2. Vsesoyuznyy nauchno-issledovatel'skiy
institut Stroydormash (for Belov, Fokin).
(Mixing machinery)

BUDNIKOV, A.S., inzh.; AFANAS'YEV, B.P., inzh., red.

[Mobile automatic S-285B unit for making mixes and lightweight
concretes] Peredvizhnaia avtomatizirovannaia ustanovka S-285B
dlia prigotovleniia rastvorov i legkikh betonov. Moskva, 1959.
19 p. (MIRA 13:6)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut orga-
nizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stvu.
Byuro tekhnicheskoy informatsii.
(Lightweight concrete) (Mixing machinery)

KALVODA, R.; BUDNIKOV, B.

Oscillographic behavior of some carbonyl compounds.
Coll Cz Chem 28 no.4:838-847 Ap '63.

1. Polarographisches Institut, Tschechoslowakische Akademie
der Wissenschaften, Prag.